

PatentIN THE UNITED STATES PATENT AND TRADEMARK OFFICE
BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES

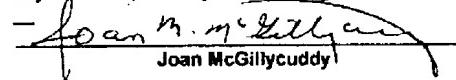
Appellants: Paul M. VANDEVOORDE et al.
Serial No.: 09/444,968
Filing Date: November 22, 1999
For: COATING COMPOSITION BASED
ON A HYDROXY GROUP-CONTAINING
FILM FORMING POLYMER, A
POLYISOCYANATE COMPOUND, AND
A DIOL

Hon. Commissioner for Patents and Trademarks
P.O. Box 1450
Alexandria, VA 22313-1450

Examiner: Melanie D. Bissett
Group Art Unit: 1711
Docket No.: ACO 2587 P1US
Dated: March 17, 2004

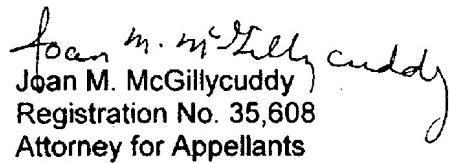
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I hereby certify that this APPEAL BRIEF WITH APPENDIX (18 sheets) is being telefaxed to facsimile machine 703-872-9316 in the United States Patent and Trademark Office on this 17th day of March, 2004 by the undersigned.


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BRIEF ON APPEAL

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Patent**OFFICIAL**

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APPEAL BRIEF

Sir:

I. INTRODUCTION

Pursuant to the provisions of 35 U.S.C. §134 and 37 C.F.R. §§1.191 and 1.192, this paper is submitted as a brief setting forth the authorities and arguments upon which Appellant relies in support of the Appeal from the Final Rejection of Claims 1-5 and 12 dated May 13, 2003.

II. REAL PARTY IN INTEREST

The real party in interest in the present case is Akzo Nobel N.V., Arnhem, The Netherlands.

III. RELATED APPEALS AND INTERFERENCES

There are no related appeals or interferences pending or anticipated involving the present application.

IV. STATUS OF THE CLAIMS

The present application was originally filed with claims 1-17. In response to a restriction requirement, Applicants filed their Response to Restriction Requirement, faxed January 16, 2001, in which Applicants elected to prosecute claims 1-6 and 12 and withdrew claims 7-11 and 13-17, with traverse. Claim 6 was allowed (if rewritten in independent format) in the Office Action dated, November 29, 2001. Thus, claims 1-5 and 12 are currently pending in this application and stand herein on Appeal.

V. STATUS OF THE AMENDMENTS

The claims remain in their form as filed. No further amendments were made after the Final Office Action.

VI. SUMMARY OF THE INVENTION

A coating composition comprising a hydroxy group-containing film forming polymer with a hydroxy value between 75 and 300 mg KOH/g solid resin, a polyisocyanate compound, and a diol of the general formula HO-CH₂-CR(C₂H₅)-CH₂-OH, wherein R is an alkyl group having 3-6 carbon atoms. (Specification page 3, lines 11-17).

VII. ISSUES

There are three issues to be resolved herein on Appeal:

1. Are claims 1-2, 4-5 and 12 anticipated under 35 USC §102(e) by Ho (US 5,798,409).

2. Are claims 1-3, 5 and 12 anticipated under 35 USC §102 (e) by Mayer et al (US 6,309,707).
3. Is claim 3 rendered obvious under 35 U.S.C. §103 (a) over Ho (US 5,798,409).

VIII. GROUPING OF CLAIMS

Appellants respectfully submit that the groups of claims for each issue set forth above, stand together.

IX. ARGUMENT

I. The Rejection of Claims 1-2, 4-5 and 12 Under 35 U.S.C. §102(a) Over Ho

In order to uphold a rejection based on anticipation, the prior art must disclose all of the claimed elements "arranged as in the claim." Richardson V. Suzuki Motor Co., 868 F.2d 1226, 1236, 9 U.S.P.Q.2d 1913, 1920 (Fed. Cir. 1989); Connell v. Sears Roebuck & Co., 722 F.2d 1542, 1548, 220 U.S.P.Q. 193, 198 (Fed. Cir. 1983).

In other words, the test for anticipation is symmetrical to the test for infringement and has been stated as: "That which would literally infringe [a claim] if later in time anticipates if earlier than the date of invention." Lewmar Marine Inc. v. Barient, Inc., 827 F.2d 744, 747, 3 U.S.P.Q.2d 1766, 1768 (Fed. Cir. 1987), cert. denied, 484 U.S. 1007 (1988).

Applicants are truly perplexed with regard the Examiner's statements regarding Ho. Under the standard of anticipation, Ho does not disclose the present invention. Ho must contain within its four corners a sufficient description to enable one to practice the invention of the rejected claims without undue experimentation or inventive skills. Akzo N.V. v. U.S. Intern. Trade Com'n, 1 USPQ2d 1241, 1245 (Fed. Cir 1986). As set forth previously and as described by the Examiner, Ho does not anticipate the present invention.

When an Examiner rejects a claim under § 102, he has the initial burden of establishing anticipation. "[I]t is incumbent upon the Patent Office. . . to set forth clearly why it regards a claim to be anticipated. . . ." *In re Mullin*, 481 F.2d 1333, 1336, 179 U.S.P.Q. 97, 100 (C.C.P.A. 1973). An examiner may not merely assert that a particular reference anticipates a claim.

In the present case, although the Examiner provides reasons for its rejection, the Examiner erroneously takes the position that a coating composition comprising a polyurethane prepared from a polyisocyanate and a diol would anticipate a coating composition comprising a polyisocyanate and a diol. To support this view the Examiner introduces the concept of the "reaction state" of the compounds, which she alleges has not been limited in the claims of the current application.

The Examiner's concept of the "reaction state" of a compound is not a known concept applied to chemical reactions. The use of this concept clearly demonstrates the lack of anticipation. It is a misconception to believe that in a chemical reaction a compound is transformed from one reaction state to another reaction state, while the compound remains the same.

Rather, in a chemical reaction a compound serving as starting material is transformed to a reaction product, which is a different compound from the starting material. Therefore, in a claim reading on a composition comprising particular chemical compounds, there is no need to explicitly limit the claim to the unreacted compounds. If the Examiner's reaction state where applicable as stated, then in every claim covering a chemical compound, one would have to go back to all the starting materials, and intermediaries and if the elements were found at any stage, they would have to address an anticipation question. This simply is not the state of the law. In order to anticipate, one skilled in the art reading the prior art would have to be enabled to make the compound, which certainly is not the case in the present application. One reading the prior art here, would not be enabled to produce the compound of the present invention.

Actually, when the compounds have undergone a chemical reaction, they are transformed to different compounds and the composition no longer comprises the original compounds.

The interpretation of the claim language in Ho cannot be expanded to include any and all possible materials the words might read on, only the functional equivalents of what is disclosed in the specification. *In re Donaldson Co., Inc.*, 29 USPQ2d 1845 (CAFC 1994). **Nothing in Ho discloses the diol and the diisocyanate as the coating composition.**

If there is not a reasonable certainty that the claimed subject matter will necessarily result, a rejection based on anticipation must fail. *In re Brink*, 164 USPQ 247, 249 (CCPA 1970). In the present instance, nothing in Ho discloses the coating composition of the present invention having **AS SEPARATE (NON REACTED) components a diol and diisocyanate....and nothing in the Ho examples results in a coating composition having AS SEPARATE (NON REACTED) components, a diol and diisocyanante.**

Additionally, to constitute an anticipatory reference, the prior art must contain an enabling disclosure. *Chesterv. Miller*, 906 F.2d at 1546 n.2, 15 U.S.P.Q.2d at 1336 n.2 (Fed. Cir. 1990); see also *Titanium Metals Corp. of America v. Banner*, 778 F.2d at 781, 227 U.S.P.Q. at 778 (Fed. Cir. 1985); *Scripps Clinic & Research Found. v. Genentech, Inc.*, 927 F.2d 1565, 1578, 18 U.S.P.Q.2d 1001, 1011 (Fed. Cir. 1991); *Helifix Ltd. v. BlokLoki Ltd.*, 208 F.3d 1339, 54 U.S.P.Q.2d 1299 (Fed. Cir. 2000) citing *In re Donohue*, 766 F.2d 531, 533, 226 U.S.P.Q. 619, 621 (Fed. Giro 1985).

A reference contains an enabling disclosure if a person of ordinary skill could have combined the description of the invention in the prior art reference with his own knowledge of the art to have placed himself, and thereby the public, in possession of the invention. *In re Donohue*, 766 F.2d 531, 533, 226 U.S.P.Q. 619,621 (Fed. Giro

1985); *In re Sheppard*, 339 F.2d 238, 242, 144 U.S.P.Q. 42, 45 (C.C.P.A. 1964). See *Helifix Ltd. v. Blok-Lok, Ltd.*, 208 F.3d 1339, 54 U.S.P.Q.2d 1299 (Fed. Cir. 2000) for an example of the court vacating a summary judgment of invalidity because the district court wrongly constructed the hypothetical person of ordinary skill in the art.

The requirement that an enabling disclosure place the public in possession of the invention is consistent with the fundamental purpose of the patent law to promote the sciences and useful arts through the disclosure of useful knowledge. *Akzo N. V. v. U. S. Int'l Trade Comm'n*, 808 F.2d at 1479, 1 U.S.P.Q.2d at 1245 (stating that when a prior art reference would enable the worker of ordinary skill to practice the invention, it is deemed to have placed the invention in the possession of the public as well), cert. denied, 482 U.S. 909 (1987).

The mere disclosure of the formula or sequence of words used to designate a compound does not, by itself, anticipate that compound. See *In re Brown*, 329 F.2d 1006, 1011, 141 U.S.P.Q. 245, 249 (C.C.P.A. 1964). **If the prior art fails to provide a method for producing the compound, and no method is known or obvious to those of skill in the art, then the reference has not placed the compound in the possession of the public and therefore does not anticipate the claimed invention.** See *In re Hoeksema*, 399 F.2d 269, 274, 158 U.S.P.Q. 596, 601 (C.C.P.A. 1968).

The reference must "sufficiently describe the claimed invention to have placed the public in possession of it." *Minnesota Mining & Mfg. CO. v. Johnson & Johnson Orthopaedics, Inc.*, 976 F.2d 1559, 1572, 24 U.S.P.Q.2d 1321, 1332 (Fed. Cir. 1992) [hereinafter "3M"]

In 3M, the patent at issue claimed an orthopedic casting material obtained by combining knit fiberglass fabric from 0.020-0.045 inches thick and having 20-200 mesh openings with a particular resin. The alleged infringer contended that the claims were anticipated by a patent to Straube. Straube did not disclose the claimed ranges for thickness and mesh openings, however. The court found that "although Garwood's

specific claims are subsumed in Straube's generalized disclosure of knit fiberglass as a substrate, this is not literal identity." Id. Thus, the court rejected the alleged infringer's anticipation defense. Such is the case in the present case, even if assuming arguendo that the Examiner's theories were correct, that still would not amount to literal identity.

Furthermore, the difference between a composition comprising a diol and a polyisocyanate and a composition comprising a polyurethane is that a diol is a compound of a specified formula characterized by a special arrangement and connectivity of atoms, and by the presence of functional groups, namely two hydroxyl groups. Meanwhile, a polyisocyanate comprises a plurality of isocyanate groups. The hydroxyl groups of the diol and the isocyanate groups of the polyisocyanate can undergo an addition reaction to form urethane groups. A polyurethane resin thus prepared no longer comprises the starting compounds, i.e. the diol as a compound with hydroxyl groups and the polyisocyanate having isocyanate groups, but a polymer having urethane groups.

A skilled person is very well aware of the differences between a composition comprising a diol and a polyisocyanate and a composition comprising a polyurethane. For coating compositions in particular, these differences are of great importance. Accordingly, a skilled person **will not be enabled** from the disclosure in Ho which is for a coating composition comprising a polyurethane as the reaction product of a diol and a polyisocyanate, **to produce a coating composition comprising a diol and a polyisocyanate.**

In the prior art, Ho relates to water-based reactive two-part polyurethane compositions comprising a part A and a part B (col. 2, ll. 18 – 22), and to non-aqueous based compositions comprising a part A and a part B (col. 4, l. 40 – col. 5, l. 34).

For aqueous-based two-part compositions, part A is an aqueous composition and optionally comprises

(a) a urethane prepolymer having hydroxyl functionality and, optionally,

(b) a water-reducible first acrylic polymer having at least one hydroxyl group, and optionally further components (c) – (h) (col. 2, l. 38 – col. 3, l. 41).

Part B comprises a crosslinker selected from polyisocyanates, blocked polyisocyanates, and mixtures thereof (col. 3, ll. 36 – 41).

The Examiner erroneously alleges that in Example 8 and in Table 5, col. 38 Ho discloses a coating composition to be used as clear coat comprising 2-butyl-2-ethyl-1,3-propanediol, an isocyanate, and two polyol compounds.

Actually, Example 8 describes the preparation of a PUR (polyurethane) dispersion used as component (a) in part A of the two-part compositions cited above (col. 30, ll. 29 – 40). In Example 8 reference is made to the manner of Example 1. In Example 1 it is described that the reaction mixture exotherms to 85°C and that the reaction was allowed to run to completion [no residual isocyanate was detected by FTIR] (col. 29, ll. 13 – 16).

Ho discloses that the compositions formed by combining part A and part B can be used as coating composition (col. 23, ll. 48 – 50). However, Ho does not disclose that the components used to prepare a polyurethane dispersion, such as the components of Table 5, can be used as a coating composition.

Further, the Examiner applies a wrong interpretation of the term "coating composition". The Examiner erroneously alleges that a "coating composition" would encompass all compositions that have the ability to coat at least a small portion of a substrate. The Examiner continues to allege that the intermediates of Ho (it is assumed that the Examiner refers to the composition of Example 8) can be considered a coating composition, because they have the capability to coat a substrate simply by contacting the mixture with a substrate.

However, a skilled person knows that the function of any surface coating is twofold: to protect and to decorate.

The Examiner has not demonstrated that the composition of Example 8 of Ho can fulfill either of the functions of protection and decoration.

It has been explained in a response filed on May 29, 2002 (page 2) that the theoretical number average molecular weight (M_n) of the polyurethane prepared in Example 8 of Ho is 286. A polyurethane with such a low molecular weight cannot fulfill any protective or decorative function at all. Further, the components of Example 8 in Table 5 cannot be used as coating composition as such due to inherent instability, since they exotherm to 85°C after mixing. Therefore, a skilled person immediately understands that the composition of Example 8 of Ho is not a coating composition.

The composition of Example 8 of Ho further differs from the currently claimed subject matter in that Example 8 does not comprise a hydroxyl group-containing film forming polymer with a hydroxyl value between 75 and 300 mg KOH/g. Polyol I has a hydroxyl equivalent weight of 72.9 g/equivalent (col. 27 – 28, Table I). This corresponds to a hydroxyl number of 769.5 mg KOH/g. Polyol IV of Example 8 of Ho has a hydroxyl equivalent weight of 98 g/equivalent (col. 27 – 28, Table I). This corresponds to a hydroxyl number of 572.4 mg KOH/g. Further, Polyol I and Polyol IV are not film forming polymers. Polyol I is a diol and has a hydroxyl equivalent weight of 72.9 g/equivalent. Therefore, the molecular weight of Polyol I is 2×72.9 g/mol, i.e. 145.8 g/mol. Polyol IV has a molecular weight of 196 g/mol. The molecular weights of Polyol I and Polyol IV are too low to enable them to form a film. Thus, the polyols used by Ho do not meet the requirements of the film-forming polymer of instant claim 1.

In item 19 of the final Office Action the Examiner has cited col. 10, ll. 23 -31 of Ho, where carboxyl-functional diols with hydroxyl numbers of 28 to 935 mg KOH/g are mentioned. However, it is not disclosed to use the cited carboxyl-functional diols as such in a coating composition, let alone in the composition of Example 8. Apparently, the Examiner has made assumptions with respect to the chemical reactions. More in particular, the cited carboxyl-functional diols are employed in the preparation of a

urethane prepolymer useful in Part A of Ho's composition. The urethane prepolymer is the reaction product of (a) diisocyanates and (b) the cited carboxyl-functional diols (col. 8, l. 65 – col. 9, l. 23). When a carboxyl-functional diol is reacted with diisocyanates, the reactants are converted by a chemical reaction to a reaction product, namely a urethane prepolymer. The urethane prepolymer is different from the starting materials.

Contrary to the Examiner's assertions, Ho only describes using the cited carboxyl-functional diols for the preparation of a urethane prepolymer, and not as a component as such in a coating composition.

In item 16 of the final Office Action, the Examiner notes that the Examples of the current application suggest coating compositions comprising the reaction products of the claimed components, and that the short pot lives of the compositions suggest that reaction begins when the components are first mixed. The Examiner's observations with respect to the presence of the reaction products cannot deprive claim 1 of novelty. The wording of claim 1 does not exclude the presence of other components, e.g. the reaction products of a polyisocyanate and diols. Actually, the presence of such reaction products forms a preferred embodiment of the current invention according to claim 6. It has to be emphasized here that the Examiner considers claim 6 allowable if rewritten in independent form.

Even assuming arguendo that such reaction products start to be formed after mixing of the components, at least a part of the starting materials, i.e. polyisocyanate, the specified diol, and the film forming polymer, are present in the coating composition during the pot life. Only after expiration of the pot life is the composition depleted of the claimed components. However, after expiration of the pot life, the composition is no longer usable as a coating composition due to increase of viscosity (p. 11, ll. 13 – 14 of the application).

In view of the arguments presented above, as well as the arguments presented previously, Applicants respectfully traverse the Examiner's rejection of claims 1-2, 4-5 and 12 as allegedly anticipated by Ho.

**II. Claims 1 – 3, 5, and 12 stand rejected
for alleged anticipation by Mayer**

In paragraph 20 of the Final Office Action, the Examiner again states the same misconception of chemical reactions, according to which the product of a chemical reaction still comprises the starting materials. Actually, Mayer discloses a coating composition comprising a component (I) containing a binder and a component (II) containing a polyisocyanate. Component (I) comprises an acrylate copolymer and optionally a polyurethane resin (col. 15, ll. 56 – 67). The polyurethane resin may be prepared by reacting isocyanato-containing prepolymers with compounds which are reactive toward isocyanate groups (col. 12, ll. 13 – 16). 2-butyl-2-ethylpropane-1,3-diol is mentioned as a suitable compound which is reactive with isocyanate groups (col. 13, ll. 15 – 23).

The hydroxyl groups of the diol and the isocyanate groups of the prepolymer undergo an addition reaction to form urethane groups. The polyurethane resin thus prepared no longer comprises the starting compounds, i.e. the diol as a compound with hydroxyl groups and the polyisocyanate, but a polymer having urethane groups.

Mayer does not disclose a coating composition comprising a diol according to the formula of current claim 1.

III. Claim Rejections under 35 USC § 103(a) over Ho

Finally, claim 3 stands rejected for alleged obviousness over Ho. Ho notes the possible addition of a polyacrylate polyol to part A of the two-part composition (col. 16, ll. 18 – 34). Part A of the two-part compositions of Ho can comprise components (a) – (h) for

water borne compositions (col. 2, l. 38 – col. 3, l. 18) and components (a) – (g) for non-aqueous compositions (col. 4, l. 39 – col. 5, l. 14). The optionally present polyacrylate polyol corresponds to component (b) of part A of said two-part compositions.

However, none of the components (a) – (h) and/or (a) – (g) of part A corresponds to the diol according to the formula of instant claim 1.

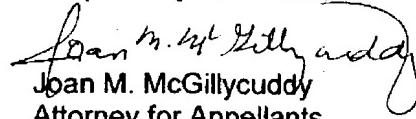
Finally, as set forth above, with respect to the difference between a composition comprising a diol and a polyisocyanate and a composition comprising a polyurethane which is the reaction product of the components, it should be realized that part A of Ho's two-part composition does not comprise a diol according to the formula of instant claim 1, even if a polyurethane corresponding to component (a) is the reaction product of such a diol and isocyanates.

Accordingly, including a polyacrylate polyol in part A of the two-part composition of Ho does not lead to the composition of instant claim 3. Therefore, claim 3 is not obvious in view of Ho.

X. CONCLUSION

In view of the arguments presented herein above appellants respectfully submit that claims 1-5 and 12 stand improperly rejected over the applied art. The Honorable Board is therefore respectfully requested to reverse the Examiner and pass all of the claims 1-5 and 12 to issue.

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XI. APPENDIX**CLAIMS**

1. (Original) A coating composition comprising a hydroxy group-containing film forming polymer with a hydroxy value between 75 and 300 mg KOH/g solid resin, a polyisocyanate compound, and a diol of the general formula HO-CH₂-CR(C₂H₅)-CH₂-OH, wherein R is an alkyl group having 3-6 carbon atoms.
2. (Original) The coating composition according to claim 1, wherein R is n-butyl.
3. (Original) The coating composition according to claim 1, wherein the hydroxy group-containing film forming polymer is a hydroxy group-containing polyacrylate.
4. (Original) The coating composition according to claim 1, wherein the diol is present in the coating composition in an amount of 1 to 25% by weight, based on the weight of the hydroxy group-containing film forming polymer.
5. (Original) The coating composition according to claim 1, wherein the composition comprises less than 500 g/l of volatile organic solvent based on the total composition.
6. (Allowable) The coating composition according to claim 1, wherein the composition further comprises a polyester or polyurethane having units derived from the diol.
7. (Withdrawn) A method of coating which comprises applying a coating composition according to claim 1 to a substrate.

8. (Withdrawn) The method according to claim 7, wherein the coating composition is applied by spraying it on a substrate.
9. (Withdrawn) The method according to claim 7, further comprising curing the coating composition at temperatures between 0 and 80°C.
10. (Withdrawn) A coated substrate wherein the substrate is applied according to the method of claim 7.
11. (Withdrawn) A coated substrate according to claim 10, wherein the substrate is an automobile or a large transport vehicle, such as trains, buses, and airplanes.
12. (Original) The coating composition according to claim 1, wherein the coating composition is a clearcoat composition.
13. (Withdrawn) A method of coating, which comprises applying a clearcoat composition according to claim 12 to the surface of a basecoat.
14. (Withdrawn) The method according to claim 13, wherein the clearcoat composition is applied by spraying it onto the surface of a basecoat.
15. (Withdrawn) The method according to claim 13, further comprising curing the coating composition at temperatures between 0 and 80°C.
16. (Withdrawn) A coated substrate wherein the substrate is applied according to the method of claim 13.
17. (Withdrawn) A coated substrate according to claim 16, wherein the substrate is an automobile or a large transport vehicle, such as trains, buses, and airplanes.